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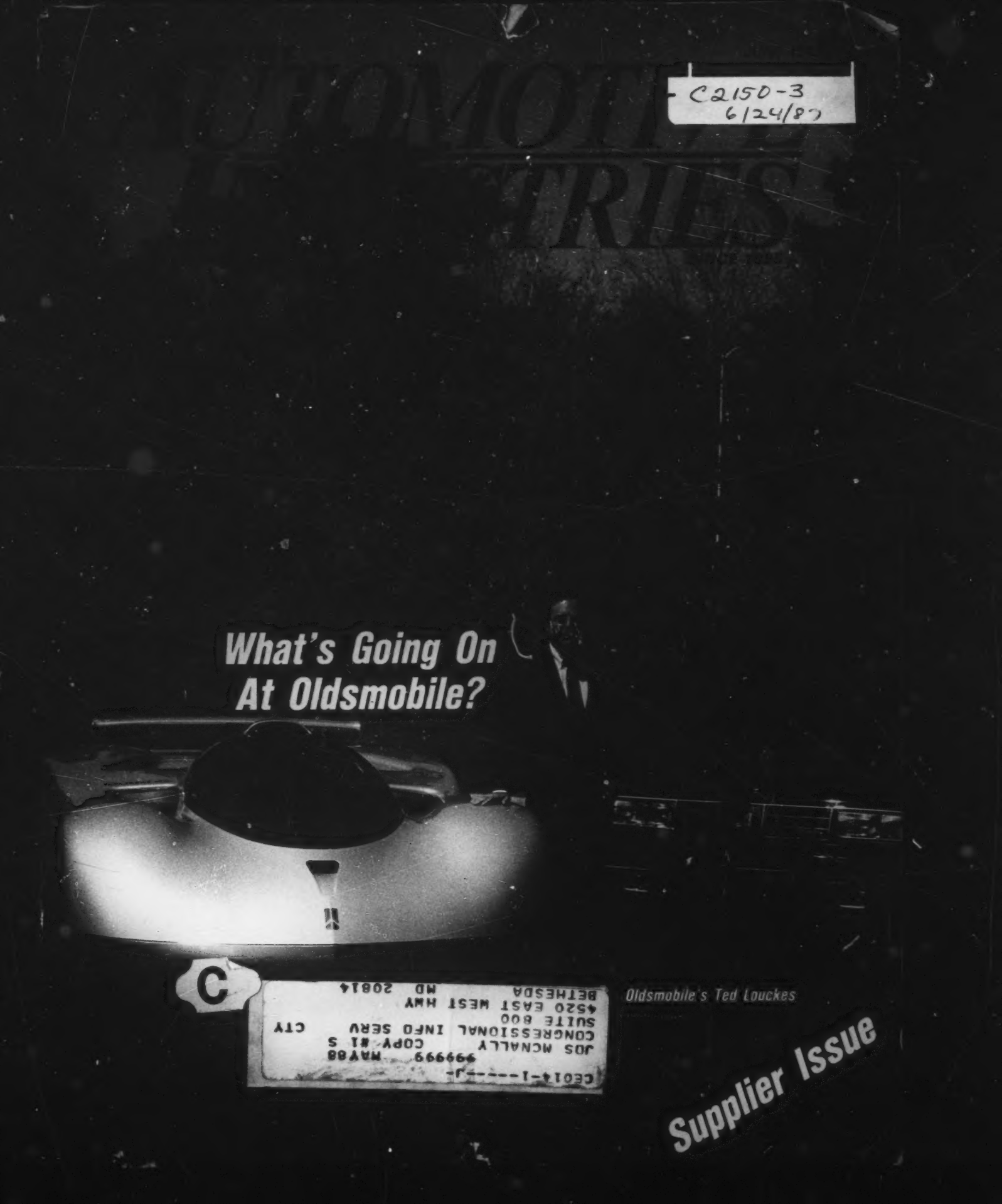
AUTOMOTIVE INDUSTRIES

What's Going On At Oldsmobile?



Oldsmobile's Ted Louckes

Supplier Issue

JUNE 1987 VOLUME 167, No.6

CHILTON'S AUTOMOTIVE INDUSTRIES SINCE 1896

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AUTOMOTIVE INDUSTRIES (ISSN 0273-656x) magazine is published monthly by Chilton Co., Chilton Way, Radnor, PA 19089. Chilton Company is a division of Capital Cities/ABC, Inc., New York, NY. Subscription rates: 1 yr. $39.95 US, $79.95 foreign. Phone (215) 964-4152. Second Class Postage paid at Wayne, PA 19087 and additional mailing offices. POSTMASTER: Send address changes to AUTOMOTIVE INDUSTRIES, Circulation Dept., Chilton Way, Radnor, PA 19089. __ Chilton Company, 1986. Permission to photocopy for internal use or the internal use of specific clients is granted by Chilton Company for libraries and other users registered with the Copyright Clearance Center (CCC), provided that a base fee of $1.00 per copy of the article, plus 25¢ per page is paid to the CCC, 21 Congress St., Salem, MA 01970. Address special requests to The Editor. (0273-656x/85 $1.00 + 25¢)

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CIVIL WAR! COMPUTER CONTRAS STRIKE MIS

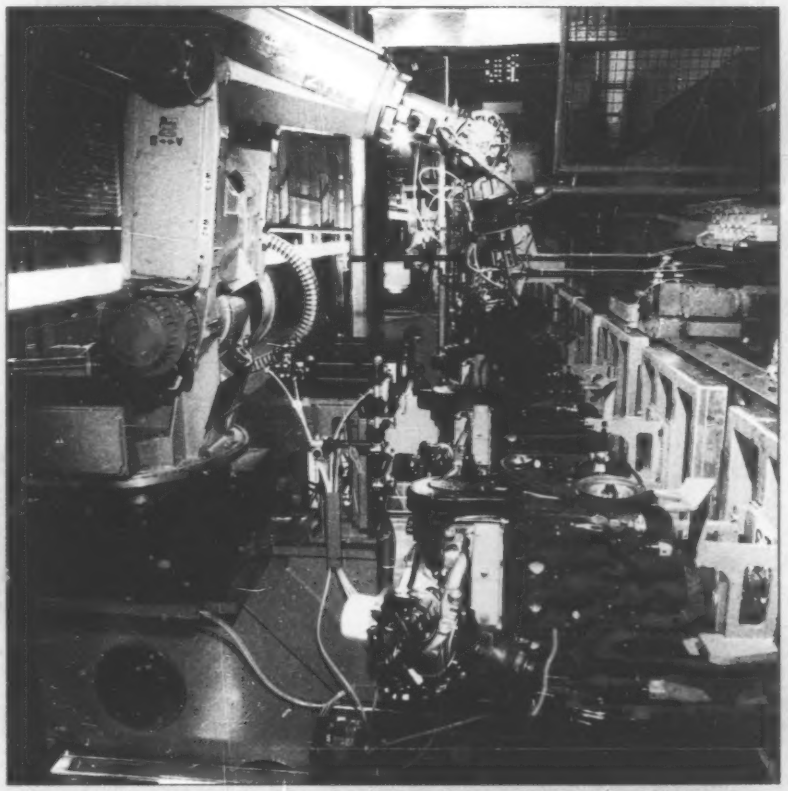
In many companies, the peaceful rule of management information systems may be in jeopardy, as CPU irregulars shake up the technical hierarchy.

by Bill Kalb

Traditionally, management information systems (MIS)/data processing departments are charged with overseeing company computer networks and users.

But the proliferation of microcomputers, programmable cell controllers and other CPU-based devices opens up a world of high-tech attacks to the company's technical side. The pervasiveness of high-tech solutions is undermining the neat lines of responsibility and command in the computer field and setting the stage to escalate intra-company conflicts.

Currently, the MIS-technical conflicts in manufacturing center around the integration of computer-aided drafting, engineering and manufacturing systems (CAD/CAE/CAM). At the same time there is the effort to gain company-wide cooperation for new solutions such as artificial intelligence (AI), to achieve computer-integrated manufacturing (CIM).



AI may be the answer to computer-integrated manufacturing (CIM).

Organization Changes

"The desire for integration of existing systems is a manifestation of a general move toward CIM," says Joel Orr, consultant.

"It means that the organization will have to change because the architecture of computing systems must reflect the structure of the organization," he continues. "It is very important that the systems you develop today are sufficiently flexible to accommodate the required changes."

In engineering and manufacturing, the problems begin as PCs and cell controllers sneak in to do things MIS couldn't—or wouldn't—do. Then came the drafting programs—packages ranging in price from $200 to $5000—necessitating full memory complements, hard disks and plotters. Minicomputers and mainframes snuck in behind MIS's back—computers run by engineering and manufacturing personnel.

"Each system was bought to solve some gnawing technical problem. About a third of the systems will be doing what they are supposed to do; the remainder will be adding to the confusion," explains Orr.

But each device fell within the purchasing authority of some technical manager. As a result it didn't draw the attention of those whose duty it is to maintain the integrity of the company's information processing.

(Continued on p. 83)

The technical buyers got around corporate computer purchasing policies by not calling the systems computers. Instead, they were listed as drafting machines, numerical control systems, lettering devices—almost anything that avoided the words computer or data processing system.

The smaller ones never reached the capital equipment appropriation board because their prices were below the threshold. Larger systems were all rented or leased.

Ronald Meyer, former manager of advanced manufacturing technology and programs at automotive and military systems supplier Rockwell International Corp. and now a consultant, remembers. "We had to go to MIS for approval of expenditures above a certain amount," Meyer recalls. "We needed some expensive equipment like Lisp machines, DEC VAXs (minicomputers) and software."

Invading MIS Turf

MIS, says Meyer, made it clear that the manufacturing-engineering group, engaged in making high-tech systems for missiles and space shuttles, was invading its territory.

Meyer attributed such attitudes to MIS's view of itself as the "keeper of computer resources."

"MIS is threatened by users' growing computer proficiency, where it should be more interested in putting more capabilities in the users' hands," contends Myer.

"Information is of growing importance to the organization," emphasizes Bill Congleton, Nissan Motor Corp. USA's director of information systems, "but we have to deliver what's needed to run the business.

"My objective is to spend more effort in defining roles, objectives and strategies of the corporation," he says. "Somehow you've got to get users and machines to function together and not fight that technology."

When it comes to empire building and maintaining the status quo, engineering's hand's are hardly clean.

"The engineering or scientific departments are doing the advanced work and they are keeping MIS out," says James Rumbaugh, a computer scientist at General Electric Co.'s Corporate Research and Development Center. "This exclusion tendency can work both ways."

Chrysler's Brauburger cites committee system as problem-solver.

Committee Power

Conflicting needs, personalities, philosophies and corporate politics can exacerbate the conflicts. To integrate the systems, three types of approaches are used: committee, inclusion of technical management in MIS structure, and requiring the technical computer management to report to MIS. Still extant is the separation of CAD and technical information systems from MIS.

Cary Coverdill, supervisor of CAD methods at American Motors Corp., notes that AMC's CAD operation, which began automating in late 1983, is "distinct from the MIS group" on matters that pertain to specific departments. "On matters of procuring engineering systems, MIS doesn't get involved," he states. "However, all AMC departments are consulted on general purpose issues that affect the entire company such as purchases of word processors."

Chrysler Corp., however, favors the committee system. "The conflicts between MIS, engineering and manufacturing have historically been a problem in American industry," says Robert Brauburger, chief engineer at Chrysler Corp. "The majority still struggle with it. We have set up a committee to eliminate that problem." The committee includes representatives from manufacturing, engineering and MIS.

Brauburger explains that engineers have a highly academic background while manufacturing is mainly made up of pragmatists. The MIS representatives represent strictly a business background. "Each (area) is different in its methods and approach," says Brauburger. "You use a different type of person in each of the three areas."

Productivity Gains

The only way to satisfy individual needs and meet overall corporate goals is to stress communications, advises Brauburger. By doing so, his committee has managed to develop a five-year plan that maps out how Chrysler will develop different interfaces between brands of computers.

Chrysler's windfall from its five-year plan have been productivity gains ranging from 30% to 300% (*see March AI, p.61*) and a company-wide database necessary for CIM.

The automaker uses an IBM 4381 to serve as a gateway between the technical and business information systems. "It allows the technical computer center and the IBM computers to share files," says G. Nicholas Simonds, Chrysler's director of MIS.

The Number Three automaker seems close to fulfilling the prediction of Phillip Armstrong, director of manufacturing systems for TRW Automotive Worldwide: "Eventually, design, engineering and manufacturing will have to sit down together, and product design and planning will have to be done concurrently."

TRW Automotive is linking its engineering and materials resource planning (MRP II) of MIS and CAD into an integrated database, using a program called CADlink.

"Tools like CADlink and other management databases are becoming increasingly important to meet the

(Continued on p. 85)

goals of improving product quality," says Armstrong. "It will help streamline information transfers out of CAD and into business systems."

Before TRW Automotive began using the program, technical information was first passed to an engineering support group, whose job it was to translate data into a form usable by MRP II systems.

Let EDS Do It

"At GM," says Chain Sandhu, staff development engineer at the Fisher Guide Division, "we are seeing more and more people with data processing backgrounds becoming informed about plant floor level activity, while plant managers are becoming increasingly computer-literate."

The education process is part of GM's ongoing drive to automate its manufacturing. Electronic Data Systems, bought three years ago by GM, functions as the company's MIS department. Its goal is to set up a structure to support widespread automation. "In factory floor planning and acquisitions, individual production and engineering staffs tell EDS what they need and EDS assures compatibility," explains Sandhu. "EDS makes sure it gets integrated."

This procedure was used when Fisher Guide brought in Allen-Bradley Vista 2000 cell controllers.

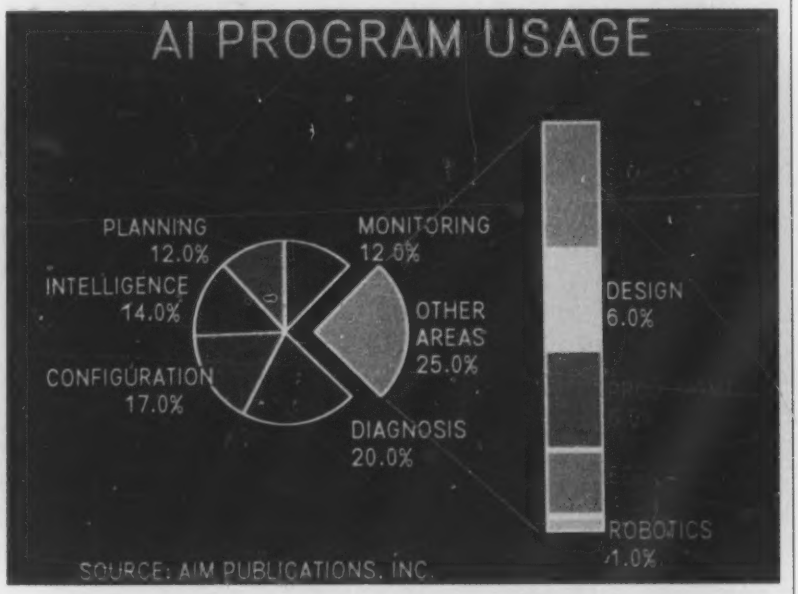
Although it looks good on paper and can work, it has generated resentment among GM engineers and manufacturing groups—a factor contributing to the "indigestibility of EDS."

The Fight Over AI

Eventually the goal of all this integration is a company-wide standardized database equally accessible to MIS and the technical side and necessary if CIM is ever to be a reality.

Meanwhile, back in the trenches, MIS, engineering and manufacturing are at loggerheads over the implementation of artificial intelligence programs to integrate today's with tomorrow's technology.

Whether for reasons of pragmatism, as MIS personnel insist, or conservatism as AI disciplines claim, MIS and AI aren't mixing well in most large companies. The automakers are no different.



MIS and AI aren't mixing well in most large companies. The automakers are no different.

All the artificial intelligence programs that are being used are developed in and for the technical side; 60% for engineering and manufacturing and 35% in R&D. AI programs for MIS functions and data processing have been around longer and are more developed, yet account for only 5% of those programs now in use.

One of the problems is that AI came first and early for office applications, but frequently performed below expectations, leaving a bad taste in the mouths of MIS/dp departments. Also, AI is frequently user-driven, threatening the control of corporate computer power structures.

"Surveys show that 80% of the Fortune 500 corporations are investigating AI," says George Hairston, president of AI Services Co. "Nearly all these experimenters are in research and development facilities, advanced applications development groups or other technical areas. They are not in information systems."

Ronald Meyer, the formal Rockwell advanced manufacturing technology manager, says groups like those in missile guidance and control systems and space shuttles were actively pursuing expert systems to meet needs, but there was a lack of support from MIS.

"Engineering and computer science groups had to champion the cause of AI," he relates. "MIS didn't want to get involved. If it didn't cost $6 million and take six years to develop, MIS said it was no good."

While the computer center retains control of the IBM mainframes, researchers can use VAXs and do whatever they want. AI specialists grew up perfectly comfortable outside the computer center. In fact, few of them are willing to do AI development on MIS's mainframes because the user interface is usually pretty awful.

"MIS cooperation is an evolutionary process," says Westinghouse's Nicholaus. "MIS managers see that they are going to integrate AI applications into the general system. We'll see more of this cooperations in the next three or four years." AI